AMENDMENTS TO THE SPECIFICATION

Please replace the following paragraphs.

On pages 4-5, paragraph [0009]:

[0009]

The hinge apparatus 10 according to the present invention will be described next. Before describing the hinge apparatus 10, its operation will roughly be described. Suppose that the reception section 3 is currently located in the folding position. In that state, when a control button 61 of the hinge apparatus 10 is depressed, the reception section 3 is automatically turned to the talking position from the folding position and kept in the talking position by a turn biasing force of the hinge apparatus 10. The reception section 3 turned to the talking position is manually turned toward ~~the usable position from~~ the folding position. In the process of the foregoing operation, the reception section 3 is turned toward the folding position against the turn biasing force of the hinge apparatus 10 until the reception section 3 is turned to a position located before the folding position by a predetermined angle (10 degrees in this embodiment). However, when the reception section 3 is turned to the position located before the folding position by 10 degrees, the reception section 3 is turn biased toward the folding position by the hinge apparatus 10. The reception section 3 is turned to the folding position and kept in the folding position by this turn biasing force.

On pages 8-9, paragraph [0015]:

[0015]

As shown in FIGS. 2 and 3, the stationary circular plate 12 is withdrawably inserted into the second connection hole 3c. As shown in FIGS. 7 and 13, a key groove 12a is formed in the outer peripheral surface of the stationary circular plate 12. By fitting the key part 3d into this key groove 12a, the stationary circular plate 12 is non-turnably connected to the connection shaft 3a and thus, non-turnably connected to the reception section 3. Accordingly, the stationary circular plate 12 is turned in unison with the reception section 3. Thus, the turning position of the stationary circular plate 12 at the time the transmission section 3 is located in the folding position is also referred to as the "folding position", and the turning position of the stationary circular position at the time the transmission section 3 is located in the talking position is also

referred to as the "talking position". Although the stationary circular plate ~~21~~ 12 is fitted into the second connection hole 3c such that the stationary circular plate 12 is movable in the direction of the turning axial line L, the stationary circular plate 12 is abutted with the bottom surface of the second connection hole 3c and positionally fixed when the hinge apparatus 10 is incorporated with the connection cylindrical part 2a and the connection shaft part 3a, and thus, the stationary circular plate 12 is never moved in the direction of the turning axial line L within the second connection hole 3c. The thickness of the stationary circular plate 12 is set to be generally equal to the depth of the second connection hole 3c, and the end face on the connection cylindrical part 2a of the stationary circular plate 12 is located on the generally same plane as the end face confronting the connection cylindrical part 2a of the connection shaft part 3a.

On page 11, paragraph [0019]:

[0019]

A turnable member 21 is turnably and slidably externally fitted to the outer periphery of the hinge shaft 13 between the stationary cylinder 11 and the stationary circular plate 12. This turnable member 21 is arranged in opposing relation to and proximate to the stationary circular plate 12. The turnable member 21 is biased toward the stationary circular plate 12 by a coiled spring (biasing means) 22. Moreover, the turnable member 21 is non-turnably connected to the stationary cylinder 11 unless the locked state of a lock means 50, which will be described later, is released, and the locked state of the lock means 50 is not released as long as the reception section 3 is manually turned. Accordingly, in case the ~~transmission~~ reception section 3 is manually turned, the turnable member 21 maintains a stopped state and the stationary circular plate 12 is turned relative to the turnable member 21.

On pages 13-14, paragraph [0024]:

[0024]

When the spherical bodies 24A, 24B are caused to escape from the cam recesses 23A, 23B by manually turning the reception section 3 by 15 degrees from the folding position toward the talking position against the turn biasing force of the coiled spring 22, the spherical bodies 24A, 24B are brought into the above-mentioned stoppable range. Then, the spherical bodies

24A, 24B are press-contacted with the confronting surface of the stationary circular plate 12 with respect to the turnable member 21 by the biasing force of the coiled spring 22. One end face confronting the turnable member 21 of the stationary circular plate 12 within the stoppable range is a flat surface orthogonal to the turning axial line L. Accordingly, within the stoppable range, the biasing force of the coiled spring 22 is converted to a frictional resistance generated between the spherical bodies 24A, 24B and the stationary circular plate 21. This frictional resistance acts to prohibit the relative turn between the stationary circular plate 12 and the turnable member 21, and the strength thereof is properly set such that the ~~transmission~~ reception section 3 can be stopped in an optional position. Of course, the ~~transmission~~ reception section 3 can be turned by applying a large turning force enough to overcome the frictional resistance.

On pages 20-21, paragraph [0039]:

[0039]

When the abutment arm part 42a is press contacted with the end face cam 41, the biasing force of the coiled spring 22 is converted to a turn biasing force. By this turn biasing force, the ~~turnable member 21~~ movable member 42 is turn biased from the folding position toward the talking position (from the initial position toward the terminal end position). Accordingly, if the movable member 42 is capable of freely turning and moving, the ~~turnable~~ movable member 42 is turned toward the talking position and the abutment arm part 42a is slid down from the starting end part toward the rear end part along the end face cam 41. When the movable member 42 is turned, the turnable member 21 is turned together with the movable member 42.

On pages 21-22, paragraph [0041]:

[0041]

When the turnable member 21 is turned by 10 degrees from the initial position, the spherical bodies 24A, 24B reach the central parts of the recesses 23A, 23B, respectively, as indicated by the solid lines of FIG. 14. As a result, the turnable member 21 is non-turnably connected to the stationary circular plate 12 by a predetermined retaining force through a connection retaining means 20. Moreover, since the inclination angles α of the-one end side inclination part 23a and the other end side inclination part 23b are set to be larger than the inclination angle $\beta 1$ of the main inclination surface part 41a of the end face cam 41, the retaining force of the connection retaining means 20 for non-turnably connecting the turnable member 21

and the stationary circular plate 12 to each other is larger than the turn biasing force of the coiled spring 22 converted by the end face cam 41, i.e., turn biasing force for turning the movable member 42 and the turnable member 21. Accordingly, after the turnable member 21 is turned by 10 degrees toward the talking position from the initial position, the stationary circular plate 12 and the turnable member 21 are substantially non-turnably connected to each other, and the turnable member 21 and the stationary circular plate 12 are turned in accordance with the turn of the movable member ~~41~~ 42. As a result, the reception section 3 begins to turn from the folding position toward the talking position.

On pages 22-23, paragraph [0043]:

[0043]

Because the movable member 42 and the turnable member 21 are already turned by 10 degrees toward the talking position with respect to the ~~transmission~~ reception section 3 and the stationary circular plate 12 immediately after start of the turning motion, when the reception section 3 is turned to the talking position and stopped, the movable member 42 and the turnable member 21 are turned by 170 degrees from the initial position and located in the terminal end position. Accordingly, the terminal end positions of the movable member 42 and the turnable member 21 are in the same position as the talking position of the stationary circular plate 12 (reception section 3). Even after the reception section 3 reaches the talking position, the movable member 42 is still turn biased in a direction toward the talking position from the folding position by the turn biasing force of the coiled spring 22 which is converted by the gentle inclination surface part 41b of the end face cam 41. By this turn biasing force, the stationary circular plate 12 is biased in the same direction through the movable member 42 and the ~~stationary~~ turnable member 21 and the reception section 3 is maintained in the talking position.

On pages 24-25, paragraph [0046]:

[0046]

As shown in FIGS. 7, 9 and 15, a pair of return inclination surfaces 51a, 51a extending in the peripheral direction about the turning axial line L are formed on the end face confronting the movable member 42 of the lock member 51. The return inclination surface 51a is inclined in the same direction as the end face cam 41, and when the lock member 51 is located in the locking

position, the rear end edge of the return inclination surface 51a is generally coincident with the rear end edge of the end face cam 41. Moreover, the return inclination surface 51a is inclined at a larger inclination angle $\gamma 1$ than the inclination angle $\beta 1$ of the main inclination surface part 41a, and when the return inclination surface 51a is viewed in a direction orthogonal to the turning axial line L, as shown in FIGS. 15(A) and 15(C), the return inclination surface 51a is intersected with the end face cam 41 at a predetermined position in the peripheral direction. In this embodiment, the return inclination surface 51a is intersected with the end face cam 41 at a position 150 degrees away toward the rear end from the starting end edge of the end face cam 41, i.e., at the intersecting part between the main inclination surface part 41a and the gentle inclination surface part 41b. As a result, the return inclination surface 51a is positioned at the lower side of FIG. 15 with respect to the gentle inclination surface part 41b on the rear end side with respect to the intersecting part with the end face cam 41 and positioned at the upper side with respect to the main inclination surface part 41a on the starting end side. Accordingly, when the reception section 3 is turned from the talking position toward the folding position so that the movable member 42 is turned from the terminal end position toward the initial position, the abutment arm part 42a is slid upward along the gentle inclination surface part 41b in the first increment of turn but it is slid upward along the return inclination surface 51a from the position of 150 degrees. When the abutment arm part 42a is slid upward along the return inclination surface 51a, the movable member 42 is turn biased toward the terminal end position by the turn biasing force of the coiled spring 22 converted by the return inclination surface 51a. However, since the inclination angle $\gamma 1$ of the return inclination surface 51a is set to be smaller than the inclination angles α of the-one end side inclination part 23a and the other end side inclination part 23b, the turnable member 21 and the stationary circular plate 12 are substantially non-turnably connected to each other by the biasing force of the coiled spring 22 without allowing the movable member 42 and the turnable member 21 to turn with respect to the stationary circular plate 12 by the ~~turn~~ biasing force of the coiled spring 22. Accordingly, when the abutment arm part 42a is slid upward along the return inclination surface 51a against the biasing force of the coiled spring 22, the reception section 3, the stationary circular plate 12, the turnable member 21 and the movable member 42 are turned in unison.

Starting on page 28, paragraphs [0052] - [0056]:

[0052]

The respective engagement protrusions 52b, 52b are protruded toward the partition wall part 11f from the circular plate part 52a, and the projected tip ends thereof are inserted in a pair of lock holes 11g, 11g passing through the partition wall part 11f such that the engagement protrusion parts 52b, 52b can be brought into and out of the lock holes 11g, 11g, respectively. The pair of lock holes 11g, 11g are symmetrically arranged with reference to the turning axial line L. Accordingly, the engagement protrusions 52b, 52b are engaged with the lock holes 11g, 11g, respectively every time the stopper member 52 is turned by 180 degrees. Moreover, the engagement protrusion part 52b is arranged in such a manner as to be fitted to the lock hole ~~11d~~ 11g when the movable member 42 is located in the initial position or in the terminal end position. The position of the lock member 51 and the stopper member 52 when the engagement protrusion part 52b is fitted to the lock hole 11g is the locking position. In this locking position, the stopper member 52 and the lock member 51 are non-turnably connected to the stationary cylinder 11. When the engagement protrusion part 52b is escaped from the lock hole 11g, the stopper member 52 and the lock member 51 become turnable with respect to the stationary cylinder 11.

[0053]

The return spring 53 is composed of a coiled spring. The biasing force of the return spring 53 is set to be much smaller than the biasing force of the coiled spring 22. The return spring 53 is inserted into an annular gap formed between the outer peripheral surface of the hinge shaft 13 and the inner peripheral surface of the lock member 51. One end part of the return spring 53 is in abutment with a stepped surface 13b formed on the outer peripheral surface at the intermediate part of the hinge shaft 13, and the other end part is in abutment with the stopper member 52. Accordingly, the return spring 53 normally biases the stopper member 52 toward the partition wall part 11f. Thus, when the engagement protrusion part 52b is inserted in the lock hole 11g, the engagement protrusion part 52b is kept inserted in the lock hole 11g and the circular plate part 52a is kept abutted with the partition wall part ~~11e~~ 11f as long as no external force acts on the stopper member 52. When the engagement protrusion part 52b is escaped from the lock hole ~~11d~~ 11g and the stopper member 52 is turned, the distal end face of the engagement protrusion part 52b is slid on the partition wall part 11f.

[0054]

When the lock member 51 is located in the locking position and the movable member 42 is located in the initial position, the movable member 42 is urged in a direction toward the folding position from the talking position by the return cam face 51c. However, the movable member 42 is prohibited from turning in the same direction by abutment of the abutment arm part 42a with the ~~lock~~ abutment surface 41c. Moreover, the movable member 42 is urged in a direction toward the talking position from the folding position by the coiled spring 22 and the end face cam 41 but prohibited from turning in the same direction by the lock member 51. Accordingly, the movable member 42 is maintained in the initial position without being allowed to turn from the initial position.

[0055]

When the engagement protrusion part 52b of the stopper member 52 is escaped from the lock hole 11g in a state that the movable member 42 is located in the initial position, the lock member 51 becomes turnable toward the ~~talking~~ terminal end position from the initial position. As a result, the movable member 42 is turned toward the ~~talking~~ terminal end position from the initial position by the turn biasing means 40. When the movable member 42 is turned, the lock member 51 is urged by movable member 42 and turned in the same direction. Since the abutment arm part 42a of the movable member 42 is slid down along the return cam face 51c at that time, the lock member 51 is caused to additionally turn by a portion equal to the slide-down portion for the abutment arm part 42a along the return cam face 51c with respect to the movable member 42. On the other hand, since the surface 51e continuous with the return cam face 51c of the lock member 51 is an inclination surface inclined downward, in FIG. 15, toward the talking position, the turning amount of the lock member 51 becomes smaller than the turning amount of the movable member 42 from the time the movable member 42 is deviated from the return cam face 51c to the time the movable member 42 is turned to the terminal end position. The difference in turning amount at that time is equal to the difference in turning amount between the movable member 42 and the lock member 51 caused by the slide-down made by the abutment part 42a along the return cam face 51c. Accordingly, when the movable member 42 is turned from the initial position to the terminal end position, the lock member 51 is also turned by 170 degrees. Of course, the stopper member 52, which is non-turnably connected to the lock member 51, is also turned by 170 degrees.

[0056]

As described above, the engagement protrusion parts 52b, 52b of the stopper member 52 are fitted to the lock holes 11g, 11g every time the stopper member 52 is turned by 180 degrees. Accordingly, The 170 degrees turn from the initial position made by the movable member 42 is not enough for the engagement protrusion parts 52b, 52b to enter the lock holes ~~11d, 11d,~~ 11g, 11g, respectively and the lock member 51 cannot be located in the lock position. In view of the foregoing, as shown in FIG. 10(D), of the two side surfaces directing toward the peripheral direction of each engagement protrusion part 52b, at least one side surface directing to a direction toward the folding position from the talking position is provided with an inclination surface 52c (the inclination surface 52c is formed on each side surface of the engagement protrusion part 52b in this embodiment) which is inclined toward the talking position from the folding position as it goes toward the distal end side from the basal end side of the engagement protrusion part 52b. When this amount of inclination is converted in an angle in the peripheral direction, the inclination surface 52c is inclined by an angle which is slightly larger than 10 degrees. Accordingly, when the stopper member 52 is turned by 170 degrees, the distal end part of the inclination surface 52c is brought into an opposing relation with one side wall in the peripheral direction of the lock hole 11g, i.e., one side wall directing in a direction toward the talking position from the folding position. Thus, when the stopper member 52 is moved toward the partition wall part 11f (leftward of FIG. 2) by the return spring 53, the inclination surface 52c is abutted with one side wall of the lock hole 11g. As a result, the stopper member 52 is turned toward the talking position by 10 degrees while moving leftward in FIG. 2. As a result, the stopper member 52 is located again in the locking position, and the stopper member 52 and the lock member 51 are non-turnably locked to the stationary cylinder 11.

On pages 31-32, paragraph [0058]:

[0058]

In the state that the reception section 3 is located in the folding position and the lock member is located in the locking position, when the control button 61 is depressed toward the stationary cylinder 11 until its outer end face is positioned on the generally same plane as the left end face, in FIG. 2, of the connection cylindrical part 2a, the engagement protrusion parts 52b, 52b of the stopper member 52 are pushed by the engagement arm parts 61, 61b and escaped from the lock holes 11g, 11g, respectively. Then, the stopper member 52 and the lock member 51 become turnable in a direction toward the talking position from the folding position, and the

movable member 42 and the turnable member 21 are turned toward the talking position from the initial position. When the turnable member 21 is turned by 10 degrees from the initial position, the spherical bodies 24A, 24B are slid down along the-one end side inclination parts 23a, 23a to the central parts of the cam recesses 23A, 23B, and are brought into contact with the other end side inclination parts 23b, 23b, respectively. Then, the stationary circular plate 12 and the turnable member 21 begin to turn in unison, and the reception section 3 is turned toward the talking position from the folding position. When the reception section 3 reaches the talking position and stops, the stopper member 52 is pushed by the return spring 53 and the engagement protrusion part 52b is brought into the lock hole 11g. This causes the lock member 51 and the stopper member 52 to be located in the locking position again. The reception section 3 turned to the talking position is manually returned to the folding position as previously mentioned.

On page 34, paragraph [0061]:

[0061]

In order to prevent an occurrence of such inconvenience, in this hinge apparatus 10, a stopper mechanism 70 is provided between the stationary circular plate 12 and the turnable member 21. The stopper mechanism 70 includes abutment protrusions 71, 72 which are formed respectively on the confronting surfaces between the turnable member 21 and the stationary circular plate 12. The abutment protrusions 71, 72 prohibit the turnable member 21 from turning with respect to the stationary circular plate 12 by abutment between the side surfaces of the abutment protrusions 71, 72 directing in the peripheral direction of a circumference about the turning axial line L. As long as the hinge apparatus 10 works normally, they are never abutted with each other. However, when the movable member 42 and the turnable ~~circular plate~~ member 21 are turned toward the talking position from the initial position by the turn biasing means 40, if the spherical bodies 24A, 24B tend to turn along the other end side inclination parts 23b, 23b from the central parts of the cam recesses 23A, 23B, respectively, by a predetermined angle or more, they are abutted with each other. In this embodiment, the predetermined angle is a small angle such as, for example, 5 degrees or less. At the most, the predetermined angle is set to be smaller than the angle corresponding to the length in the peripheral direction of the other end side inclination part 23b. Accordingly, even if the spherical bodies 24A, 24B successfully climb over the central parts of the cam recesses 23A, 23B, respectively, they cannot climb over the other end side inclination parts 23b, 23b. The turnable member 21 is stopped before the

spherical bodies 24A, 24B climb over the other end side inclination parts 23b, 23b. When the turnable member 21 is stopped in a state that the spherical bodies 24A, 24B are in contact with the other end side inclination parts 23b, 23b, respectively, the spherical bodies 24A, 24B are returned to the central parts of the cam recesses 23A, 23B by the other end side inclination parts 23b, 23b, respectively. Accordingly, the hinge apparatus 10 maintains its normal condition.

On page 36, paragraph [0064]:

[0064]

It should be noted that the present invention should not be limited to the above-mentioned embodiment but many changes and modifications can properly be made in accordance with necessity.

[0065]

For example, in the above-mentioned embodiment, the hinge apparatus according to the present invention is applied to the cellular telephone set 1. However, the hinge apparatus 10 can also be used as a hinge apparatus for turnably connecting a main body part and a liquid crystal display part of a notebook type personal computer.

[0066]

Moreover, in the above-mentioned embodiment, the return inclination surface 51a, the flat surface 51b and the return cam face 51c are formed on the lock member 51, and at the time for returning the reception section 3 automatically turned to the talking position to the folding position, the abutment arm part 42a of the movable member 42 is contacted with the return inclination surface 51a, the flat surface 51b and the return cam face 51c. However, it is also accepted that the abutment arm part 42a is contacted with the end face cam 41 at that time.

[0067]

Moreover, although in the above-mentioned embodiment, the coiled spring 22, which is a component of the turn biasing means ~~30~~ 40, is used as a biasing means for biasing the connection retaining means 20 as well, another coiled spring may be used for biasing the connection retaining means 20.

[0068]

Furthermore, in the above-mentioned embodiment, the stationary circular plate 12 and the turnable member 21 are integrated by a retaining force of the connection retaining means 20

larger than the turn biasing force of the coiled spring 22. By doing so, the turn biasing force acting on the movable member 42 is transmitted to the stationary circular plate 12 through the turnable member 21. However, in case there is no need for manually turning the stationary circular plate (second hinge member) 12 toward the talking position from the folding position with respect to the stationary cylinder (first hinge member-)_11, the turnable member 21 may be integrally formed with the stationary circular plate 12. In other words, the movable member 42 may be non-turnably connected directly to the stationary circular plate 12 by eliminating a provision of the turnable member 21. Moreover, in case the stationary circular plate 12 can be moved in a direction of the turning axial line L in unison wit the movable member 42, the movable member 42 may be integrally formed with the stationary circular plate 12.

On page 37, paragraph [0065]:

~~[0065]~~[0069]

A hinge apparatus according to the present invention can be utilized as a hinge apparatus for connecting, for example, a transmission section and a reception section of a cellular telephone set or a main body and a display unit of a notebook type personal computer.

BRIEF DESCRIPTION OF DRAWINGS

~~[0066]~~[0070]

FIG. 1 is a view showing a cellular telephone set in which a hinge apparatus according to the present invention is used and which is opened in a talking position, FIG. 1(A) is its front view and FIG. 1(B) is its side view.

FIG. 2 is a view showing a hinge apparatus according to the present invention, in which a stationary circular plate is located in a folding position, FIG. 2(A) is an enlarged sectional view taken on line X-X of FIG. 1(A) and FIG. 2(B) is a sectional view taken on line B-B of FIG. 2(A).

FIG. 3 is a view showing the hinge apparatus, in which the stationary circular plate is located in a talking position, FIGS. 3(A) and 3(B) are sectional views like in FIGS. 2(A) and 2(B).

FIG. 4 is a sectional view for explaining a method for assembling the hinge apparatus in a cellular telephone set.

FIG. 5 is an enlarged sectional view taken on line X-X of FIG. 2.

FIG. 6 is a view when viewed in a direction as indicated by an arrow X of FIG. 4.

FIG. 7 is an exploded perspective view of the hinge apparatus.

FIG. 8 is a view showing a stationary cylinder used in the hinge apparatus, FIG. 8(A) is its side view, FIG. 8(B) is a view when viewed in a direction as indicated by an arrow B of FIG. 8(A), FIG. 8(C) is a view when viewed in a direction as indicated by an arrow C of FIG. 8(A), FIG. 8(D) is a sectional view, partly omitted, taken on line D-D of FIG. 8(B) and FIG. 8(E) is a sectional view, partly omitted, taken on line E-E of FIG. 8(C).

FIG. 9 is a view showing a lock member used in the hinge apparatus, FIG. 9(A) is its side view, and FIGS. 9(B) and 9(C) are views when viewed in a direction as indicated by arrows B and C of FIG. 9(A), respectively.

FIG. 10 is a view showing a stopper member used in the hinge apparatus, FIG. 10(A) is its side view, and FIGS. 10(B), 10(C) and 10(D) are views when viewed in a direction as indicated by arrows B, C and D of FIG. 10(A), respectively.

FIG. 11 is a view showing a movable member used in the hinge apparatus, FIG. 11(A) is its side view, FIGS. 11(B) and 11(C) are views when viewed in a direction as indicated by arrows B and C of FIG. 11(A), and FIG. 11(D) is a sectional view taken on line D-D of FIG. 11(B).

FIG. 12 is a view showing a turnable member used in the hinge apparatus, FIG. 12(A) is its side view, FIGS. 12(B) and 12(C) are views when viewed in a direction as indicated by arrows B and C of FIG. 12(A), respectively, and FIG. 12(D) is a sectional view taken on line D-D of FIG. 12(C).

FIG. 13 is a view showing a stationary circular plate used in the hinge apparatus, FIG. 13(A) is its side view, FIGS. 13(B) and 13(C) are views when viewed in a direction as indicated by arrows B and C, respectively, and FIG. 13(D) is a sectional view taken on line D-D of FIG. 13(B).

FIG. 14 is an enlarged sectional view taken on line X-X of FIG. 13 showing a relation between a cam recess and a spherical body.

FIG. 15 is a cam diagram showing a relation among an end face cam of the stationary cylinder, an abutment arm of the movable member, and a return inclination surface, a flat surface and a return cam face of the lock member.

On page 39, please delete paragraph [0067].